

## WHAT IS CLAIMED IS:

1. An image forming apparatus which forms an image on an image forming medium and which can form a specific hidden pattern for specifying an apparatus at a specific position on said medium,

wherein both a software control signal generated by software and a hardware control signal which is generated by hardware and necessarily used for forming an image on said medium are used together as control signals for adding said specific hidden pattern when said specific hidden pattern is added to a specific position on said medium to form said image.

2. The image forming apparatus according to claim 1, comprising:

image data supplying means for supplying color image data;

data existence/absence confirming means for confirming the existence/absence of image data in said image forming apparatus;

hardware control signal supplying means for generating and supplying said hardware control signal based on the existence/absence of image data confirmed by said confirming means;

software control signal supplying means for generating and supplying said software control signal for adding a specific hidden pattern;

control signal synthesizing means for synthesizing a control signal in such a manner that said specific hidden pattern is necessarily formed on a color image when a usual image is formed on said image forming medium based on said hardware control signal and said software control signal;

hidden pattern generating means for generating said specific hidden pattern;

test pattern generating means for generating and outputting a test pattern when a color image is not formed;

pattern selecting means for selecting and outputting one of said specific hidden pattern and said test pattern based on said control signal synthesized by said control signal

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synthesizing means; and

image formation output signal synthesizing means which synthesizes said color image data supplied from said image data supplying means and said specific hidden pattern selected by said pattern selecting means when said image data is inputted and which synthesizes said test pattern selected by said selecting means when said color image data is inputted.

3. The image forming apparatus according to claim 2, wherein said hardware control signal generated by said hardware control signal supplying means is a signal which affects the addition of said specific hidden pattern and which avoids the normal formation of a usual image when said signal is abnormal.

4. The image forming apparatus according to claim 3, wherein said hardware control signal can be generated by software when said signal is set.

5. The image forming apparatus according to claim 2, wherein said specific hidden pattern generated by said hidden pattern generating means is a special pattern formed by using colors or patterns which are hard to be identified by the naked eye in such a manner that a body of an image forming apparatus which has formed an image can be specified from a reproduced image on said medium, even if a specific original which must not be inherently formed is formed on said medium.

6. The image forming apparatus according to claim 2, wherein said data existence/absence confirming means generates said hardware control signal for said hardware control signal supplying means, when image data is supplied from said image data supplying means.

7. The image forming apparatus according to claim 2, wherein said control signal synthesizing means is constituted by an OR circuit for calculating the logical OR of said hardware control signal supplied from said hardware control signal

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supplying means and said software control signal supplied from said software control signal supplying means, and outputs a control signal by which a specific hidden pattern is necessarily added to an image when one of said hardware control signal and said software control signal is supplied.

8. The image forming apparatus according to claim 2, wherein said pattern selecting means is constituted by a selector for selecting said specific hidden pattern generated by said hidden pattern generating means with said control signal for adding said specific hidden pattern to an output image as a selected input by said control signal synthesizing means.

9. The image forming apparatus according to claim 2, said image formation output signal synthesizing means outputs to a printer engine an image formation signal by which a hidden pattern using a predetermined color or pattern is added at a predetermined position of an image to be formed by adding said specific hidden pattern supplied from said pattern selecting means to said image data supplied from said image data supplying means.

10. The image forming apparatus according to claim 2, wherein said image data supplying means is constituted by a yellow data supplying apparatus for supplying yellow image data to each of said image formation output signal synthesizing means and said hardware control signal supplying means.

11. The image formation apparatus according to claim 2, wherein said hardware control signal supplying means is constituted by a -YVDEN output portion which outputs an external yellow sub scanning direction image enabled signal (-YVDEN) based on said yellow image data.

12. The image forming apparatus according to claim 11, wherein said control signal synthesizing means is constituted by a NOT circuit which inverts said external yellow sub scanning direction image enabled signal (-YVDEN) outputted from said

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-YVDEN output portion as said hardware control signal supplying means and an OR circuit for calculating the logical OR of an output from said NOT circuit and an output signal from a specific pattern addition signal generating register as said hardware control signal supplying means.

13. The image forming apparatus according to claim 11, wherein said data existence/absence confirming means is so constituted as to generate a hardware control signal in said hardware control signal supplying means based on a control signal for controlling drive of a paper carrying motor for carrying paper as said image forming medium.

14. The image forming apparatus according to claim 11, wherein said pattern selecting means is constituted by a selector for selecting said specific hidden pattern generated by said hidden pattern generating means with said control signal by which said specific hidden pattern is added to an output image by said control signal synthesizing means as a selected input.

15. The image forming apparatus according to claim 14, wherein said hidden pattern generating means is constituted by a specific pattern generating portion for generating a specific hidden pattern.

16. The image forming apparatus according to claim 11, wherein said image formation output signal synthesizing means is constituted by an adder which outputs to a printer engine an image formation signal by which a hidden pattern using a predetermined color or pattern is added at a predetermined position of an image to be formed by adding said image data supplied from said image data supplying means and said specific hidden pattern supplied from said pattern selecting means.

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